

## **REMARKS**

Claims 1-94 are pending in the present application, claims 95-104 having been canceled as being directed to an unelected invention. The Examiner has rejected claims 1-51, 53, 55, 58-70, 73-80, 84-85, and 87-92 under 35 U.S.C. §102(b), and has rejected claims 18-19, 30-32, 36, 43-44, 46, 48, 52, 54, 56-57, 71-72, 81-83, 86, and 93-94 under 35 U.S.C. §103(a). Applicant has amended claims 1, 49, and 88-89, has canceled claims 10 and 87, and has added new independent claim 105. No new matter has been added.

### **Section 102 Rejections**

Claims 1-51, 53, 55, 58-70, 73-80, 84-85, and 87-92 were rejected under 35 U.S.C. §102(b) as being anticipated by Abreu, *et al.*, "Video-Based Multi-Agent Traffic Surveillance System", Proceedings of the IEEE 2000 Intelligent Vehicles Conference, 4-5 October 2000, pgs. 457-462 (hereinafter VM).

Applicant has amended claim 1 to incorporate subject matter from claim 10, amended claim 49 to include subject matter from claim 87, and added new claim 105 which includes subject matter from claims 1 and 20.

At the very least, VM fails to disclose or suggest *a method for detecting one or more objects belonging to the same object class comprising the steps of: a) receiving a video sequence from a video camera comprised of a plurality of image frames; b) applying one or more classifiers to detect components of objects in an image frame in the video sequence, wherein the component classifiers include classifiers for detecting components at multiple scales, or wherein the accumulated confidence scores is inferred from confidence scores across multiple frames using a recursive filter, or wherein the one or more classifiers include overlapping component classifiers, and wherein said method is adapted for use with a moving video camera*, as essentially recited in independent claims 1, 49, and 105.

VM is directed to a video-based traffic surveillance system using stationary cameras placed along a highway. The section of VM cited by the Examiner against claim

1 (pg. 459, left column, lines 8-37) disclose Classifier agents that can classify mobile objects with a confidence factor using information from other Classification agents and previous classifications. This section of VM also discloses class templates that are updated using an unsupervised learning procedure. The Examiner alleges that the initialization of these class templates with typical measures foreseen for each class discloses Applicant's recited claim 10 limitation that *the component classifiers include classifiers for detecting components at multiple scales*, however Applicant urges that VM's class template initialization only discloses a single scale for each component to be detected, not multiple scales.

The Examiner cited VM's Figure 4 as disclosing Applicant's claim 20 limitation that *the one or more classifiers include overlapping component classifiers*. However, all Figure 4 shows is a truck within a bounding box. Applicant urges that one cannot infer the existence of *overlapping component classifiers* from this figure, and urges that the Examiner is improperly reading the teachings of Applicant's disclosure into VM.

Furthermore, the section of VM cited by the Examiner (pg. 459, left column, line 43 to right column, line 2) against claim 87 discloses Behavior agents, which determine the motion of mobile objects using position information. However, there is nothing in this disclose of VM that discloses Applicant's claim 87 limitation that *the accumulated confidence scores is inferred from confidence scores across multiple frames using a recursive filter*, as alleged by the Examiner.

Finally, Applicant urges that VM's system, being a decentralized stationary system based on stationary cameras placed along a highway, is not adaptable to being *used with moving cameras*, as essentially recited in claim 1, 49, and 105. A non-limiting example of such a system would be a system on board a vehicle.

Since VM fails to disclose or suggest all of the limitations of independent claims 1, 49, and 105, these claims are not anticipated by VM. Reconsideration and withdrawal of these rejections are respectfully requested.

Claims 2-48, 50-51, 53, 55, 58-70, 73-80, 84-85, and 87-92 all depend from either

claim 1 or claim 49, are patentable for at least the same reasons as claims 1 and 49. Reconsideration and withdrawal of these rejections are respectfully requested.

Further regarding dependent claims 18-19, which are directed to *performing an online adaptation to adapt a classifier structure to an online pattern*, the Examiner stated that VM does not expressly disclose that the system is adapted for online usage, and took official notice that putting a system for online usage is well known in the art to reject claim 18 as being obvious. Applicant urges that the Examiner has misunderstood both VM and the subject matter of claim 18. A video-based traffic surveillance system such as that disclosed by VM is a computer system, and is thus online whenever it is operating. The *online adaptation* recited in claim 18 is directed to the efficient and accurate detection of objects within a class that has large variation. (See Applicant's specification, paragraphs [0046]-[0048]). VM nowhere discloses or suggests the methods recited in Applicant's claims 18-19, and the Examiner's Official Notice is beside the point as the system of VM is online.

### **Section 103 Rejections**

Claims 18-19, 30-32, 46, 48, 52, 54, 71-72, and 81-83 were rejected under 35 U.S.C. §103(a) as being obvious over VM.

Claims 36, 43-44, 56-57, 86, and 93-94 were rejected under 35 U.S.C. §103(a) as being obvious over VM in view of U.S. Patent No. 5,761,326 (Brady, et al.).

Applicant urges that claims 18-19, 30-32, 46, 48, 52, 54, 71-72, and 81-83, which depend from either claim 1 or claim 49, are patentable for at least the same reasons as claims 1 and 49. Reconsideration and withdrawal of these rejections are respectfully requested.

Brady is directed to a machine vision system that acquires images from roadway scenes and processes the images by analyzing the intensities of edge elements within the image. Brady applies fuzzy set theory to the location and angles of each pixel after the pixel intensities have been characterized by vectors. A neural network interprets the data

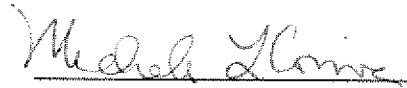
created by the fuzzy set operators and classifies objects within the roadway scene. The system can also track objects within the roadway scene, such as vehicles, by forecasting potential track regions and then calculating match scores for each potential track region based on how well the edge elements from the target track regions match those from the source region as weighted by the extent the edge elements have moved. However, Brady does not rectify the deficiencies of VM, discussed above, and thus Applicant urges that a *prima facie* case of obviousness against claims 36, 43-44, 56-57, 86, and 93-94 over VM and Brady cannot be maintained. Reconsideration and withdrawal of these rejections are respectfully requested.

**CONCLUSION**

Applicant urges that claims 1-9, 11-86, 88-94, as amended, and new claim 105 are in condition for allowance for at least the reasons stated. Early and favorable action on this case is respectfully requested.

Respectfully submitted,

By:



Michele L. Conover, Esq.

Reg. No. 34,962

Attorney for Applicants

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**SIEMENS CORPORATION**  
Intellectual Property Department  
5<sup>th</sup> Floor  
170 Wood Avenue South  
Iselin, New Jersey 08830  
(732) 321-3100  
(732) 321-3030 (FAX)